

Remarks

Claims 21-27 and 29-39 stand pending and rejected in this application. New dependent claim 40 is hereby added with this amendment.

In the above noted Office action, the Examiner objected to the inclusion of claims 1 and 10 as drawn to a nonelected invention with traverse; claims 1 and 10 are hereby canceled without prejudice. The Examiner rejected claims 21-27, 29-37, and 39 under 35 U.S.C. 112, second paragraph, for lack of antecedent basis. The Examiner also rejected claims 21-27 and 29-37 under 35 U.S.C. 103(a) as obvious over US Pat. No. 2,140,735 to Clarke ("the '735 patent" or "Clark") in view of US Pat. No. 1,245,233 to Hynes ("the '233 patent" or "Hynes") and, for certain claims, in view of US Pat. No. 2,806,075 to Gaubatz ("the '075 patent" or "Gaubatz"), US Pat. No. 3,695,149 to Eberhart ("the '149 patent" or "Eberhart"), US Pat. No. 3,015,227 to Barber ("the '227 patent" or "Barber"), and/or US Pat. No. 4,741,364 to Stoss ("the '364 patent" or "Stoss"). The Examiner also rejected claim 38 under 35 U.S.C. 103(a) as obvious over US Pat. No. 3,985,300 to Pinney ("the '300 patent" or "Pinney") in view of Hynes and US Pat. No. 5,665,301 to Alanko ("the '301 patent" or "Alanko").

Rejections under 35 U.S.C. 112

The Examiner rejected claims 21-27, 29-37, and 39 under 35 U.S.C. 112, second paragraph, for lack of antecedent basis of the terms "said injection position" and "said employed position." Claims 21 and 39 have been amended to correct this typographical error to correspond to the terms ejection and deployed as set forth in the claims. Accordingly, we request withdrawal of the claim rejections based on 35 U.S.C. 112, second paragraph.

Obviousness Rejection regarding Independent Claim 21

The Examiner rejected claims 21-23, 26, 27, 29-32, 34, 35, and 39 as obvious over Clark in view of Hynes. Claim 21 is the only independent claim. As amended, claim 21 recites that an injection spindle of the claimed injection head has two ends that seal against the walls of a chamber of the injection head. The injection head includes a plug that moves with the injection spindle through the chamber such that when the injection spindle moves to the deployed position, the plug is deployed into

the outlet to block the outlet. The outlet is connected to an injection port that is also blocked by the plug. Then, the plug remains in communication with the injection port to block the injection port when the injection spindle retracts from the deployed position. New claim 40 further specifies that the injection head may be removed from the injection port after the injection spindle is disposed in the deployed position such that the plug remains blocking the injection port after the injection head is removed from the injection port.

So configured, the chamber may be cleaned shortly after injection of a fluid, for example a resin, and the injection spindle retracted without removing the injection head from a molding system. By another approach such as that recited in claim 40, the injection head may be removed for cleaning while the plug remains sealing the injection port. In other words, the plug allows the injector spindle to be manipulated or injection head removed while a mold of a molding system cures when the injection head is used with such a system.

Clarke discloses a dual-head piston system wherein the piston is moved to fluidly connect an oil supply port to one of two outlets. The Clarke system is designed to allow oil to flow from the supply port through one of the outlets, depending on the position of the piston. The piston heads of the Clarke system move such that one head will block one outlet when the piston is in one position and the other head will block the other outlet when the piston is in a second position. Clarke does not disclose or suggest having a portion of a piston head remaining engaged with one of the supply ports to continuing blocking the port after the piston moves to a different position.

Hynes discloses a valve system wherein a valve is controlled to be seated in valve seats in communication with pipe openings to direct steam from an inlet to one of two pipes. Hynes teaches rapid switching of the valve between the two valve seats as controlled by a solenoid and a thermostat to control temperature via a redirection of steam through the valve. Like Clarke, Hynes fails to disclose or suggest having a portion of the valve remain seated in the valve seat when the solenoid moves the valve stem.

The Examiner stated in the previous action that Hynes and Clarke teach plugs sufficiently that it is prima facie obvious to make the plugs separable or removable. Hynes and Clarke, however, teach systems where making the portions of the respective systems that block outlets removable would render such systems completely inoperable. The device of Hynes would no longer be able to redirect steam to control temperature; the device of Clarke would no longer be able to redirect oil to maintain a constant oil pressure difference across a cooling chamber. Indeed, neither reference teaches a need or ability to seal a port to allow further manipulation of the piston or valve while maintaining the seal. Accordingly, it is requested that claim 21 be passed to issuance.

Dependent claims 22-23, 26, 27, 29-32, 34, 35, and 39 were rejected over Clarke and Hynes and/or in view of additional patents to Gaubetz, Eberhart, Barber, and/or Stoss, which were cited to show secondary features of these claims. None of these references, however, overcome the deficiencies of Clarke and Hynes. New dependent claim 40 depends from claim 21 and further recites that the injection head is removable from the injection port after the injection spindle is disposed in the deployed position such that the plug remains blocking the injection port after the injection head is removed from the injection port, which none of the above references teaches or suggests. Accordingly, these claims are allowable for the same reasons discussed above with respect to claim 21.

Obviousness Rejection regarding Independent Claim 38

The Examiner rejected claim 38 as obvious over Pinney in view of Hynes and Alanko. As amended, claim 38 recites similar features as those discussed above in connection with claim 40. In short, claim 38 recites that the injection head of the molding system is removable from the injection port after the injection spindle is disposed in the deployed position such that the plug remains blocking the injection port after the injection head is removed from the injection port.

Pinney discloses an injection valve with a valve stem that includes a sealing head that seals the internal chamber of the valve by seating against a seat about the injection port. The seal of Pinney, however, is broken upon the retraction of the

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valve stem, and Pinney does not teach the seal can be maintained after removal of the valve from an accompanying system. Alanko does not teach features relating to an injection head. Accordingly, it is submitted that claim 38 be passed to allowance.

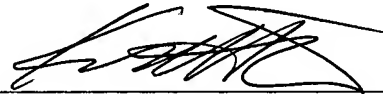
Conclusion

With these amendments, it is submitted that the application is in condition for allowance. We, therefore, respectfully request allowance of the application. The Examiner is encouraged to contact the undersigned by telephone if it may be helpful toward advancing the prosecution of the application.

Respectfully submitted,

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